

Amendments to the Specification

Please replace the paragraph beginning at page 1, line 6, with the following rewritten paragraph:

The present invention relates to a field interpolation method determination device for determining whether to perform either an inter-field interpolation method or an intra-field interpolation method ~~to combine on fields of an inputted interlaced signal into frames and thereby~~ to provide conversion to a progressive signal.

Please replace the paragraph beginning at page 3, line 4, with the following rewritten paragraph:

Japanese Laid-Open Patent Publication No. 9-18784 (claiming a priority of US application No. 94-366799) discloses a field interpolation method determination device ~~a field interpolation method determination device~~ which identifies whether an input interlaced signal is a telecine-converted signal based on an inter-field difference of the input interlaced signal, and determines a field interpolation method.

Please replace the paragraph beginning at page 5, line 3, with the following rewritten paragraph:

The inter-field interpolation signal ~~video-video signal~~ S_{v1} is either of a 2-field delay input interlaced signal V_{d2} and an input interlaced signal V_{in} , which respectively correspond to fields before and after the 1-field delay input interlaced signal V_{d1} , and it is selected as follows.

Please replace the paragraph at page 13, line 2 through page 14, line 7, with the following rewritten paragraph:

A first aspect of the present invention is directed to a field interpolation method determination device for determining whether to perform either an inter-field interpolation

method or an intra-field interpolation method to combine on fields of an inputted interlaced signal ~~into frames and thereby~~ to provide conversion to a progressive signal, the device comprising:

pixel level difference detection means for detecting a pixel level difference between an input interlaced signal and a 1-field delay input interlaced signal obtained by delaying the input interlaced signal by one field;

field correlation detection means for detecting correlation between the input interlaced signal and the 1-field delay input interlaced signal based on the pixel level difference, and outputting $N-1$ inter-field correlation determination signals;

inter-field difference correlation storage means for storing the $N-1$ inter-field correlation determination signals corresponding to N sequential fields of the input interlaced signal;

field/frame correlation determination means for determining, based on a pattern of values of the $N-1$ inter-field difference correlation determination signals, whether two sequential fields among the N sequential fields are generated from a same frame or different frames either 2-2 or 2-3 pulldown-converted; and

interpolation method determination means for determining, as an interpolation method, inter-field interpolation if the fields are determined to have been generated from the same frame either 2-2 or 2-3 pulldown-converted, or intra-field interpolation if the fields are determined to have been generated from the different frames neither 2-2 nor 2-3 pulldown-converted.

Please replace the paragraphs at page 15, line 12 through page 17, line 3, with the following rewritten paragraphs:

In a fifth aspect based on the second aspect, counter means increments by one count if the fields are determined to have been generated from the same frame either 2-2 or 2-3 pulldown-converted, resets a count value if they are determined to have been generated from the different frames neither 2-2 nor 2-3 pulldown-converted, or maintains the count value if otherwise, and

the interpolation method determination means selects the inter-field interpolation if the count value is greater than a predetermined value, or selects the intra-field interpolation if the count value is less than or equal to the predetermined value.

In a sixth aspect based on the first aspect, if the input interlaced signal is a 2-3 pulldown signal pulldown-converted, N is equal to or more than 6.

In a seventh aspect based on the first aspect, if the input interlaced signal is a 2-2 pulldown signal pulldown-converted, N is equal to or more than 5.

In an eighth aspect based on the first aspect, if at least two sequential signals among the N-1 inter-field correlation determination signals indicate absence of correlation, the field/frame correlation determination means determines that the two sequential fields have been generated from the different frames the input interlaced signal have been neither 2-2 nor 2-3 pulldown-converted.

In a ninth aspect based on the first aspect, if the N-1 inter-field correlation determination signals alternately indicate presence and absence of correlation, the field/frame correlation determination means determines that the two sequential fields have been generated from the same frame the input interlaced signal have been either 2-2 or 2-3 pulldown-converted.

In a tenth aspect based on the first aspect, the field correlation detection means includes:

pixel difference determination means for determining for each pixel whether the pixel signal level difference is greater than a first threshold which indicates a predetermined pixel level and outputting a pixel unit level difference determination result represented by a binary value;

field unit level difference determination means for adding one field to the pixel unit level difference determination result, and outputting a field unit level difference determination result; and

inter-field correlation determination means for determining whether inter-field correlation is significant based on whether the field unit level difference determination result is greater than a second threshold indicating a predetermined number of pixels.

Please replace the paragraph beginning at page 17, line 24, with the following rewritten paragraph:

In a thirteenth aspect based on the first aspect, the inter-field difference determination means further includes: field identification means for outputting, based on the 1-field delay input interlaced signal, a field identification signal which indicates whether a field of the 1-field delay input interlaced signal is an even field or an odd field; and

an AND circuit for calculating a logical product of the field identification ~~means signal~~ and the inter-field correlation determination signal, and outputting the product to the ~~N~~ inter-field difference storage means.

Please replace the paragraph beginning at page 25, line 4, with the following rewritten paragraph:

The field interpolation method determination section 8a determines ~~determines~~ relationships between fields and parent frames in the input interlaced signal based on an inter-field pixel level difference Sp, and determines whether to use either inter-field interpolation or intra-field interpolation to convert a 1-field delay input interlaced signal Vd1 into a progressive signal.

Please replace the paragraph beginning at page 27, line 22, with the following rewritten paragraph:

The first register 85, the ~~second~~~~third~~ register 86, the second register 87, and the fourth register 88 are D-flip-flops, and supplied with the field pulse VP as a clock. These four registers sequentially store a corresponding one of four sequential inter-field correlation determination signals Df. Also, values of the stored four inter-field correlation determination signals are outputted as register output signals (R1-R4).

Please replace the paragraph beginning at page 30, line 4, with the following rewritten paragraph:

Next, referring to FIG. 4, an operation of the video signal processing device 100a is described. The input interlaced signal Vin is obtained by converting parent frames A, B, and C of a progressive signal into A1 and A2, B1 and B2, and C1 and C2, respectively. Fields of the input interlaced signal Vin are entered in "field No." in the order from smallest to largest.

Please replace the paragraph beginning at page 34, line 14, with the following rewritten paragraph:

The field interpolation method determination section 8b determines relationships between fields and parent frames in an input interlaced signal, based on a 1-field delay input interlaced signal Vd1 and an inter-field pixel level difference Sp, and determines whether to use either inter-field interpolation or intra-field interpolation to convert the 1-field delay input interlaced signal Vd1 into a progressive signal.

Please replace the paragraph beginning at page 39, line 13, with the following rewritten paragraph:

The field interpolation method determination section 8c determines relationships between fields and parent frames in an input interlaced signal based on a field identification signal Doe and an inter-field pixel level difference Sp, and determines whether to use either inter-field interpolation or intra-field interpolation to convert a 1-field delay input interlaced signal Vd1 into a progressive signal.

Please replace the paragraph beginning at page 40, line 20, with the following rewritten paragraph:

The ODD/EVEN detection section outputs "0" as the field identification signal Doe if the 1-field delay input interlaced signal Vd1 corresponds to an odd field, while it outputs "0" "1" as

the field identification signal Doe if the 1-field delay input interlaced signal Vd1 corresponds to an even field.